

A CASE STUDY ON STREET DESIGN

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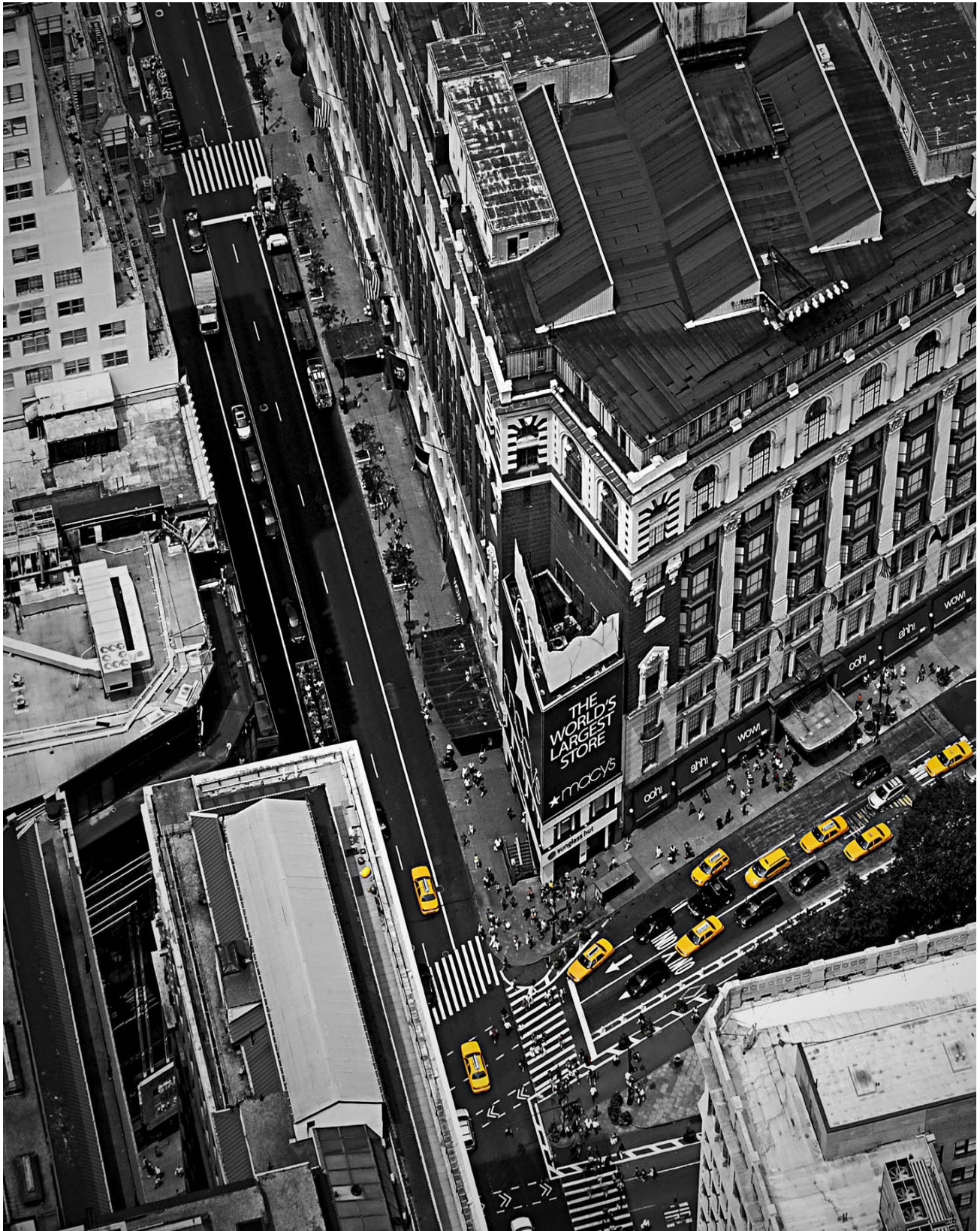
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<http://wallpapersus.com/wp-content/uploads/2012/11/City-Streets.jpg>

Introduction

Atlanta is one of the fastest growing cities in the South and like many other cities has experienced a cultural change in perception of the role of cities and urban spaces. With the rejection of suburban sprawl and the recent migration of people into the city, Atlanta is having a problem common to many urban cores throughout the nation, their streets are no longer answering the needs of their populace. Streets in Atlanta have long been the realm of the automobile. Whereas, this was an acceptable reality in the twentieth century it is no longer the case now. Streets and public right-of-ways in Atlanta account for 25% of the urban land. They present an incredible opportunity to address a wide range of urban problems but are being severely underutilized in their current state.

Historically streets have been designed by engineers whose main goal was to move traffic as quickly as possible, little attention was given to “attracting people to linger in shared public space.”¹ Over the years however, the relationship between people and their streets have changed drastically. Urban designers like Allen Jacobs and writers like Jane Jacobs have introduced ground breaking concepts of the proper relationship between people, streets, and their design. No longer are streets mere “public utilities”² whose main goal is to facilitate movement from one place to another. Now the way we define our streets have become more complex, more interactive. Urban streets today are seen as a place of social and commercial encounter and exchange. They are “places of movement, places where personal and political life flow together, and they exclude no one.”³ With the work of Allen Jacobs, Jane Jacobs, and others the definition of a street went from being functionally driven to one that is both functional and social. With this new definition came an under-

standing of how streets should be designed. From Paul Zucker’s Town and Square to Gordon Cullen’s Townscape, urban designers and architects have attempted to reconcile the new definition of a street with its design. Recent urban theories on street design suggest that the answer to designing a good street lies in the exploitation of one or more of the multiple functions a street can provide. For example, Green Street designs incorporate sustainable infrastructure into its street design while, Complete Streets suggest that roads should function for all its users, not only vehicular traffic. These theories demonstrate the new conversations people are having about their space, urbanism, and development. The auto-centric view is no longer one that people are accepting in their urban environment, these theories provide Atlanta with a possible framework it could use in the redevelopment of its city and streets. However, there is no clear explanation in how we might design for these multifaceted, complex, and dynamic relationships.

This paper will look at several contemporary theories of street design in order to get a better understanding of how streets in Atlanta could be redesigned and repurposed with the understanding of streets as being “symbolic, ceremonial, social, and political places [Jacobs 5].” I will begin first by analyzing the history of the street as it was established throughout ancient Rome, 15th century Renaissance, the Medieval era, Baroque, New York in the 1900s, and modern day suburbia in order to give context to the theoretical ideas that are currently being applied. Then I will look at some of the issues in the design of streets, in order to understand why streets are so difficult to design. Finally, I will analyze each theory through the use of case studies in order to understand how they dealt with and overcame the issues of street design and how these theories might be applicable to Atlanta.



History

The design of streets goes back thousands of years and has taken many forms, most commonly radial, grid, and organic. Out of these three major street designs the grid pattern became the standard throughout most of the world and provides the bases from which much of Western street design and theory develop. The use of the orthogonal grid pattern in town planning reaches back to the ancient Near East and it was not until the fifth century B.C. that the Greeks made the grid the organizational scheme from which all of their cities would be organized around. The earlier streets of ancient Greece were irregular in shape and came in a multitude of forms and array's [fig. 1]. It was the grid pattern implemented by Hippodamus that became the most popular street design aesthetic and eventually laid the ground work for the orthogonal scheme developed by the Romans.



fig. 1

The organization of streets in ancient Rome was an axial plan. The basic principle for the design of Roman streets was simple, it consisted of laying out a system of coordinates about two axial roads intersecting at right angles, of which the one, running from north to south, was known as the 'cardo,' and the other, from east to west, as the 'decumanus.' "Field boundaries were driven parallel to these two axes, and the whole area divided up into a grid of squares or rectangles, which could be readily described in terms of its relation to the two axial streets" [fig. 2].⁴

Roman towns were designed with "a rectangle enclosed within a rectilinear circuit of walls, a pair of gates symmetrically placed at the middle of the shorter sides, marks the line of what was, the road from Rome to the frontier."⁵ A second pair of gates, near the south end

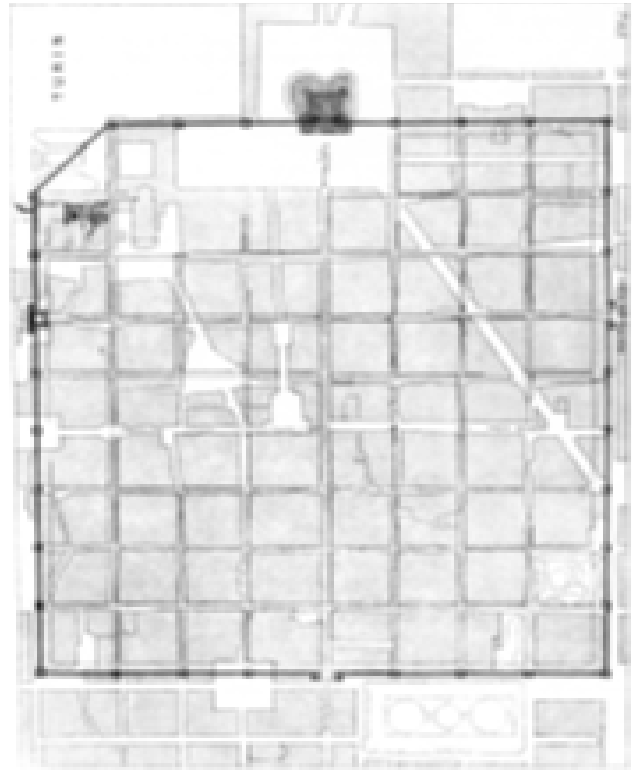


fig. 2

marks the line of a transverse street, which crossed the main street at right angles. Parallel with these two axial streets and with the walls was a network of secondary streets.⁶

The Roman grid had several key advantages, it was a system well adapted for military use and could be applied with relative ease to newly acquired territory. These advantages demonstrate how the development of street design over the centuries began to develop less as a product of urban planning and more out of necessity – this is especially true when one considers the adaptation of the orthogonal street pattern by the Romans mimicked the organization of military camps. The design of streets was in essence a sequence of collective actions that evolved slowly over time, and was the result of events or in response to terrain or orientation.

It was during the Middle Ages that the development of streets began to be informed by more than the need for military protection. Due to the lack of space within the walled fortresses of medieval towns wider major streets were developed through the city, to control for traffic and safety, to create additional gathering spaces for events and expand existing market spaces. “Smaller, narrower, curved alleys and minor streets were created off of major streets usually in response to minor changes as the need arose [fig 3].”⁷

During the Renaissance street design evolved out of the desire for discipline and order. Spaces were designed with symmetry and balance in mind. This desire to create a pleasing spatial relationship was based off the appeal to aesthetics through structural clarity, which informed not only the cities of the Renaissance but, also their streets, which were believed to be “better straight and very wide [Alberti, bk4 pt5].”⁸

The evolution of street design in the United States developed out of the Roman grid from centuries earlier, yet, unlike the Roman grid, the gridiron is a plan that negates the topography in an attempt to build a city that

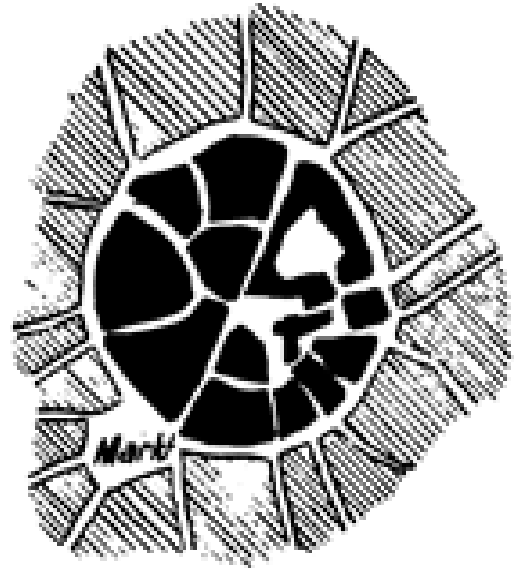


fig. 3

has as its foundation a stringent framework for which development and growth can happen. Gridiron plans run primarily in a north-south, east-west direction, “this regularity needs a definite way of measuring the ground” and as a result is often not connected with the surrounding topography.⁹ As such, the gridiron establishes a hierarchy of streets with its immediate inception.¹⁰ The gridiron plan allowed cities to grow in an orderly and logical fashion. As land was bought and developed, the street grid would be extended in order to accommodate future growth, which made the development of cities relatively easy [fig. 4].

With the Industrial Revolution underway during the 19th century there would be a shift in the development of street design that would define how suburbia and suburban sprawl became popular urban design movements. The urban landscape of the industrial city was dominated by the improvement in technology and industry and the evolution of the street reflected this cultural phenomenon. Streets according to Sitte, would no longer be characterized by their narrow dimensions, as in the medieval period, they had to ex-

pand in order to incorporate the significant increase in people and traffic. As a result, streets became an un-deviating boulevard, miles long and so broad that its dimensions could only be defined as huge.¹¹

As a result of the chaos and blight of these cities middle class people began to seek refuge outside of the city in what would become some of the first suburbs of the nineteenth-century. For those who could afford it an escape into the suburbs or nature was meant to heal physical ailments of diseases and depression that so often characterized city life. These first suburbs would eventually be the inspiration of the suburban sprawl that has come about within the past seventy years.

Suburban street design was significantly shaped by the invention of the automobile, which was a product of the Industrial Revolution. With the advent of the automobile peripheral areas became more accessible and provided those who could afford it an opportunity to escape from the industrial city. The suburban street

then became curvilinear, and wide in order to offer civilians a more pastoral and bucolic setting.¹² Houses were setback to make the view more appealing from the street and trees were planted on either side of the “pedestrian walkway” in order to act as both a physical and visual separator for pedestrians and vehicles.¹³

Street design of suburbia at its height was primarily concerned with directing traffic through the creation of street hierarchies. Street design began to evolve around the automobile and the traditional planning grid was replaced with “superblocks,” these which were part of a larger traffic calming initiative spurred by the growth of suburbia. it was within these superblocks that traffic was directed into wide collector streets and excluded through traffic by grouping houses around a cul-de-sac, which was served by collector streets and separated by common parkland [Research Highlights] [fig. 5].¹⁴

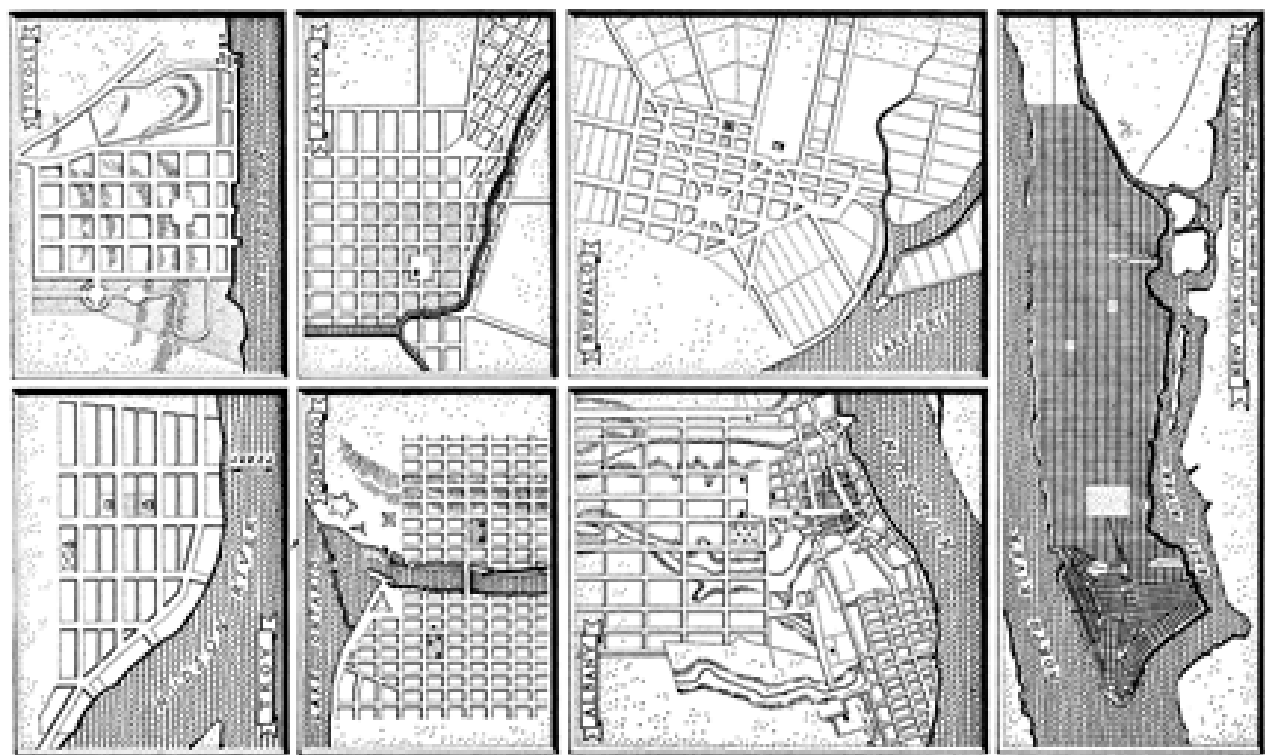


fig. 4

Over the centuries streets were transformed in order to respond to cultural and aesthetic changes, to become more functionally viable, and accommodate the changing needs of the people and place. They have been transformed into wide grand boulevards in the nineteenth century and in the twentieth century they were removed and transformed into dead ends and arterial streets. The orthogonal grid was no longer applicable in many cities and was now replaced with large collector streets, highways, and cul-de-sacs.

Today another shift is beginning, car usage is declining and cities are looking for long term sustainable alternatives that allow for growth and encourage economic development. Throughout the nation, in these places, efforts have been made to breakdown the super block. Municipalities have constructed additional streets between the parcels, policy initiatives have been employed to tear down highways that run through city limits, and community activists and organizations that

are sensitive to the urban environment are growing in number, all in order to create sustainable and efficient communities.

The history of the design of streets is far more layered and interactive than what I am suggesting here and formulating a theory on street design is a complex undertaking. There are many considerations and factors that must be taken into account that have little to do with the actual design. However, these are the elements that make the design successful, and understanding the circumstances by which a particular street type has come into existence, allows individuals to know if there is still a need for this street type and how might we begin to reconcile the changing needs of the people and the environment, with what is currently there. Thus, when theorists, designers, and others try to decide on a direction of street design and the level of interaction it should have with people and the surrounding environment, the task is not easy.



fig. 5



Issues with Street Design

It is important to recognize that despite the large traverse of historical time there are a few reoccurring issues in street design and development that designers and theorists have made continual attempts to address. Usually, street design was enveloped within larger urban design theorems and has not, until recently, been considered an urban design strategy worth pursuing until the nineteenth century. Then streets began to be redefined from their conventional definition as two dimensional thoroughfares, into a complicated three dimensional network, which is understood to be part of a larger street system that makes up an even larger urban fabric. For Urban Planning theorist like, Charles Robinson, this meant the "recognition of the street as a site for homes, and not only passage."¹⁵

Since the acceptance of the street as a part of community culture, it has been the goal of urban theorists to develop a concept that would enhance the safety and physical comfort of the street in order to "encourage participation" to make it the "most desirable place to be."¹⁶ Urban conditions like health, safety, comfort, access, the availability of light, air, and land use are only a few of the considerations theorists, planners, and designers must give to good street design. According to architect Thomas Schumacher, "physical planning factors that appear most to influence street use are [1] user density, [2] diversity, [3] pedestrian/vehicular interaction, and [4] configuration of street and context."¹⁷

[1] Density is important to the creation of a healthy active street environment. Without adequate density, streets may become unsightly, unoccupied, derelict spaces. However, one cannot design density, it is a matter of public policy, yet, theorists and designers must address it in order to improve the public realm.

Street activity occurs only if it is convenient for large numbers of pedestrians to use it in various ways, but even places that have a high density are not guaranteed to bring activity to the streets. Creating theories that take into account various degrees of density is no easy task, theorists and designers must be aware that numerous other variables affect street use which often counteract the potential effects of high density.

[2] In order to achieve physical, social, and economic diversity streets must simultaneously "inhibit the use of the automobile, support goal-directed activities, and employ the potential of the street space for unplanned activities."¹⁸ The inclusion of mixed uses produces not only a situation in which people from various economic and social standings can co-mingle it also, allows for the greater possibility of having diverse uses and activities happen. The restrictions applied to cities and neighborhoods however, tend to restrict a mix of land uses which often reduce the possibility of, and interaction in the street.¹⁹ The public space of the street then is often unused because there is no place to go.

[3] Physical safety on streets is crucial in order to encourage pedestrian participation. During Antiquity being able to protect the city correlated with how streets were designed. Centuries later, during the Renaissance, the increase in trade and reduced need for the military made possible the linking of urban street networks outside of the city. As a result safety issues of another kind arose, the protection of the pedestrian from the increase in vehicular traffic. The separation of pedestrian traffic from vehicular traffic is a constant consideration in street design and while the complete separation of high-speed vehicular traffic from the pedestrian is necessary, "the complete separation of the two can be potentially

harmful to street activity.”¹⁹ The primary consideration in separating automobiles from pedestrians is pedestrian safety which has resulted in the creation of pedestrian centered public spaces. These spaces act to pull pedestrian activity away from the streets completely and leave them vacant. Theories then must “consider all the factors of pedestrian/auto interaction, not just traffic separation.”²⁰

[4] “Configuration” of the street.²¹ Streets can be defined in two dimensions, the horizontal – the width of the street – and the vertical – the building façade, the third dimension I spoke of earlier would be topography or landscape. The ability of the user to immediately perceive the street as a figure, not only promotes a sense of enclosure and orientation but also defines the public realm.²² The enclosure of the street as an outdoor room is a precondition for street activity and it is important to define it by the creation of a connected façade. Theorists have to consider both the vertical and horizontal dimensions of street design when formulating their theories however, “numbers and proportions are not clear and it is uncertain whether to know if building spacing or height or one of the many other variables along a street will define or fail to define it.”²³

When we look at these concepts in more depth we begin to realize that the dynamism of cities make these concepts difficult to implement. These of course are not the only considerations that must be given to street design. The design of streets is a multifaceted endeavor made all the more complicated by the ever evolving complex urban condition. It is difficult for theorists “to know when a quality has been achieved in the best way.”²⁴ As we have seen when developing a concept about street design much still remains uncertain.²⁵ In recent years theorists have tried to tackle these factors and have developed various urban theories. Much like the historical designs before, each theory builds on the other, reflecting in large part the mood of the culture, and filling in the gaps that were left from previous design philosophies. Allen Jacobs described street design as a “leapmanship, a point where it is necessary to jump from the known to something else that is desired.”²⁶ Everyday urbanism, green streets, and complete streets are that leap.

Everyday Urbanism

“Urbanism as a way of life” is the use of a “new position in understanding and approaching the city.”²⁸ Therefore, everyday urbanism takes the ubiquitous everyday qualities of urban life and seeks to design urban spaces based on “ordinary human experience.”²⁹ Urbanism of the everyday celebrates “the lived experience shared by urban residents” and suggests that designers design out of the “banal landscape of everyday life.”³⁰ For everyday urbanist Margaret Crawford and others, it is within the ordinary that one finds dynamism and inspiration for “new social arrangements and form.”³¹ Everyday urbanism “combines theories on urbanism as well as other disciplines into a multidimensional consideration of the city.”³² It looks to emphasize the experience of the populace, acts under the assumption that the design of spaces is a communal undertaking, and requires input from the populace. Unlike other urban theories and concepts everyday urbanism understands that urban environments are messy, loud, and dynamic and it seeks to accentuate these expressions of the city through small, modest solutions. It underscores a cultural interpretation of the urban environment over design and tempers the relationship between physical design and social behavior. In short culture is stressed while design is suppressed. This suggests a shifting of power from the professional expert to the pedestrian.

One of the tactics of the everyday urbanist is Tactical Urbanism which is the attempt to make “short-term actions into long-term gains.”³³ Tactical Urbanism seeks to use the everyday mundane urban spaces and temporarily augment them in a radical manner that would suggest an alternative use for the space. The everyday urbanist finds inspiration in the temporarily of urban space because it is the interplay of differences that represent the city. It is within the spaces where differences collide or interact that are the most potent

sites for everyday urbanism. The use of urban tactics as a means to suggest change is the essence of Everyday Urbanism. The tactics employed “allows a host of local actors to test new ideas before making substantial political and financial commitments.”³⁴ In this way tactical and everyday urbanists create an urban laboratory in which they can see the measureable effects of their designs in a particular area.³⁵ “In an increasing number of instances, municipalities follow the lead of their citizens by more permanently implementing the short-term, low-budget livability improvements initiated by citizen-activists.”³⁶ An example of this can be seen in the creation of play streets in “New York’s Jackson Heights neighborhood.”³⁷ Play streets “re-purpose the public right-of-way for recreational activities” and with no immediate park near the neighborhood where such interactions could take place, the local community decided to close down a block of the neighborhood to vehicular traffic.”³⁸ The closure of the street was initially just on Sunday but, with a growth in popularity and neighborhood the street was eventually closed permanently. Another example of is Guerilla Gardening which is the gardening on sites that are vacant or underutilized. The intent is to bring awareness of the latent potential in these properties to provide environmental as well as, social improvements to a neighborhood.

These adaptive urbanist techniques are a way for local communities to bring attention to a particular local need, in hopes of inspiring a fresh look at these derelict urban spaces. The inspiration for the improvement of these spaces comes mostly from the desire of locals to make an effective change for the betterment of their community. These changes extend to the temporary adaptive re-use of vacant buildings in Portland Oregon, to the creation of distinct Chicano art as advertisement for local services in Los Angeles.

Case Studies

[Yarn Graffiti]

Yarn graffiti or yarn bombing began in Houston, Texas by a guerilla group called Knitta Please. The objective of yarn bombing is to create the unexpected in the urban environment. "It generally involves the act of attaching a handmade item to a street fixture or leaving it in the landscape."³⁹

Yarn graffiti is taking place all over the world, in a number of different capacities, and jurisdictions. Unlike the more common spray can or marker graffiti, yarn graffiti is not permanent or damaging to property because of this it is often times left where it has been placed for long periods of time. It can be large, ornate in stitching, or have many different colors. Some yarn bombings have been large enough to cover entire statues, while other times it is a simple wrap around a light pole. Either way they create unique environments in bold and unusual ways.

In 2011, International Yarn Bombing Day was created. Yarn bombings question gender roles, public norms, what is considered art, and how people interact with their environment. In an effort to encourage people all over the world to partake in knitting cozies for their urban environment. The idea was to give people a creative outlet to express themselves and partake in social interactions that might not have otherwise occurred.

In Vancouver a community yarn bombing took place that involved "over 300 crocheters and knitters" who created individual mini cherry blossoms and hung them on a tree that sits outside of the historic Joy Kogawa House.



<http://www.elpadvisors.com/tag/tactical-urbanism/>



http://en.wikipedia.org/wiki/Yarn_bombing

2008 NATIONAL PARK(*ing*) DAY

INSTRUCTIONS:

1 *find a parking spot*



2 *insert coins into meter*



3 *set up park*



4 *enjoy!*



Friday, September 19
Join this annual celebration of transforming parking spaces into temporary public parks.

- Build your own park
- Help others build parks
- Visit Park(ing) Day parks near you

tpl.org/parkingday

Build a Better Block



<http://betterblock.org/kansas-city-better-block-a-success/>



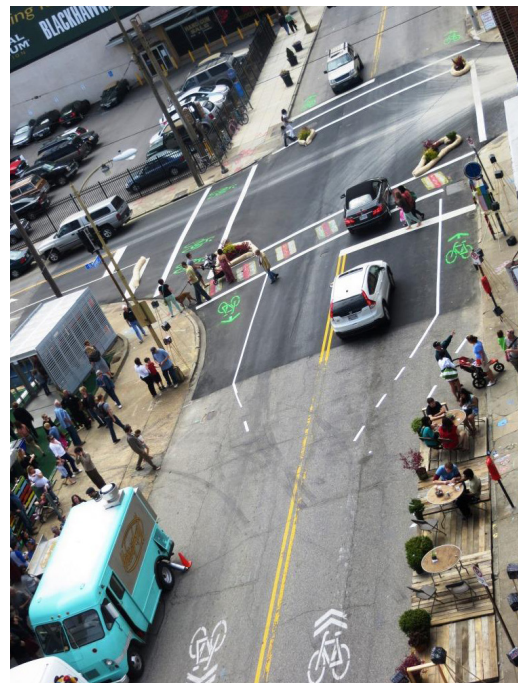
<http://teambetterblock.com/blog/project/san-antonio-better-block-project/>

Build a Better Block is a community driven effort in which everyday urbanism tactics are used to bring awareness to public officials “to show how the block could be re-vived...if restrictive ordinances were removed.”⁴⁰ Organizers, local business owners, neighbors, and other property owners collaborate on converting a neighborhood block or street into what they would like to see, a vision of the future.

The blocks are constructed quickly with the help of many people in the community. The better block looks to provide a “temporary urban intervention that helps the community picture permanent changes in the future.”⁴¹ Organizers commonly use food trucks, pop-up retail, and art installations to create a sense of place. Streets are usually temporarily redesigned to show that cars, people, and cyclists can co-exist together to create a community and environment that is economically and socially prosperous to everyone.

There are a number of success stories coming out of the community driven Better Block. In some cases local leaders and planners were able to get together to ad-

just local zoning ordinances to be more flexible in their implementation and other times it was able to kick-off private investments by developers and others who were now able to see the potential of the space.



<http://betterblock.org/better-blocks-in-norfolk-va-highlighted-in-mit-white-paper/>

[Pop-Up Art Loop]

Pop-up spaces are intended to utilize vacant storefront buildings for a temporary period of time. The effort began with large and small company's as a way to create "brand awareness" however, the concept was quickly taken over by community organizers, urban planners, and property owners as a way to revitalize vacant storefront main streets.⁴²

Chicago's Loop Alliance has taken this effort one step further by turning these vacant storefronts and in some cases unsafe alley ways into art exhibits or installations. The idea is to create an artistic loop that would activate an area of the city in which would normally pass through. These pop-up galleries allow artists the opportunity to exhibit their work in a setting that might not otherwise be available to them because of the expense. However, with pop-up galleries artists, much like retailers, can exhibit in a space for well below what it would cost to rent it and in the process they increase pedestrian activity within the area.

[Pop-Up Restaurants]

Similar to Pop-Up Retail, Pop-Up Restaurants allow chefs to come into another chef's kitchen or temporarily utilize a vacant restaurant space in order to prepare their particular menu. These Pop-Up Restaurants can exist for a day or months and provides the chef an opportunity to test recipes and allows the property owner and the public a vision for a space that would otherwise have sat empty.

[Play Streets]

Play Streets are essentially residential streets that have been closed to all vehicular traffic for a particular time. In essence these Play Streets came out of a need for parents to have a safe place for their kids to play, creating an outdoor play area from a street.



<http://chi.streetsblog.org/2013/09/10/chicago-loop-alliance-uses-placemaking-to-promote-commerce/>



<http://ny.eater.com/tags/pop-ups>



<http://www.nycitysnaps.com/PlayStreet.htm>



<http://www.nycitysnaps.com/PlayStreet.htm>



<http://citystudiovancouver.com/projects/keys-to-the-streets/>

[Keys to the Street]

Music is thought of as a social activity bringing people together as well as, providing entertainment. In areas where people do not congregate. For example, in Vancouver, British Colombia musical instruments are being donated and placed throughout public spaces. These pop-up pianos are intended to bring music, fun, and entertainment to an area.

Pop-up pianos have also been used in cities like Miami and New York City with a large degree of success and is most times associated with bringing awareness to a larger cultural and artistic scene. Sometimes performances are staged by pianists in what may be called a pop-up music festival. Other times the pianos are painted by local or celebrity artists or placed in conjunction with another pop-up entities like, food trucks or pop-up retail.

Bringing music to the urban environment has helped communities build a sense of place and encourage community interactions.



<http://downtownmagazinenyc.com/pop-up-piano-event-gets-an-encore-in-city-parks/>



<http://downtownmagazinenyc.com/pop-up-piano-event-gets-an-encore-in-city-parks/>

Green Streets

The green street design approach is a concept that arose out of the larger sustainability movement of the twentieth century. It has multiple uses and seeks to provide a creative sustainable alternative to traditional streetscape designs. "By design and function, urban areas are covered with impervious surfaces: roofs, roads, sidewalks, and parking lots."⁴³ Due to the large amount of impervious surfaces in urban areas when it rains the impervious surfaces greatly reduces the water ability to soak into the ground which leads to "increases in runoff volume and high runoff peak flows," which are damaging not only to the environment but, also surrounding property.⁴⁴ These alterations in ecology increases the potential of flooding and more importantly creates a great strain on the stormwater infrastructure that is present. The impervious surfaces act as collection sites for vehicular pollutants and distribute them through the stormwater infrastructure and ultimately to local streams, disrupting the local ecological habitat. As people became more aware of the environmental costs that were being transferred to the surrounding ecology they sought ways to alleviate the growing environmental impact cities were having. "Roads presented many opportunities for green infrastructure application."⁴⁵

Green infrastructure seeks to make a permanent connection to long-term sustainability goals through the incorporation of infrastructure projects that mimic a natural hydrological ecology. The incorporation of these sustainable techniques into the public right-of-way is considered a green street.

Green streets were developed as part of a larger green infrastructure initiative that seeks to minimize the negative environmental impact cities are having by addressing problems such as, runoff, soil erosion, the heat island effect, as well as, other sustainability issues.

They are designed to merge the natural hydrological cycle, managed through the mimicry of natural ecosystems, with a designed urbanscape. Through the use of planting and a reduction in the impervious surface area, water is filtered through the urbanscape before going into streams and rivers. Minimizing the amount of pollution that pours into our rivers and streams and reducing the impact on our stormwater systems.

Green street design can vary depending on a number of factors like the needs of the street, the amount of right-of-way, and the layout of the street. Many streets are oversized for their typical everyday function because they were designed to accommodate emergency vehicles and provide a free flow of traffic. Street reduction initiatives are used as a part of green street design in order to reduce the amount of impervious surface, replacing the areas that were taken away with a bio-retention curve extension or swell. There are many different ways to design for a green street however, the goal still remains the same, to reduce impervious surfaces and runoff through the enhancement of ecologically friendly streetscapes and road improvements.



<http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm>

Case Studies

Green infrastructure can be adapted to street types from residential, arterial, and commercial. Residential adaptations could make use of stormwater curb extensions, which is a pedestrian bulb out that incorporates a rain garden in order to help filtrate runoff, minimize traffic speed, and increase pedestrian safety. Permeable pavers and stormwater catchments can also be used throughout the design of streets in order to allow water to flow through the topsoil and any excess of water can flow into the stormwater catchments.

[SW Montgomery, Portland, OR]

A bold and ambitious project the Southwest Montgomery Green Street is a nine-block plan that incorporates a variety of green infrastructure, sustainability strategies, and alternative transportation strategies along its corridor. The Montgomery Green Street primary design goal is to create connectivity among various surrounding amenities, provide connectivity to central city business district jobs, and to connect to the greater metropolitan area via the streetcar, future light rail, and numerous transit bus lines. Through the use of a highly integrated and pedestrian-oriented urban streetscape that incorporates a variety of green infrastructure strategies along its corridor including storm water swales, green walls, and green roofs.

The Southwest Montgomery Green Street is a part of a larger University District Plan that stretches from the Willamete River to highway 405. According to the Portland State University Framework Plan the new pedestrian corridor of Southwest Montgomery will be the primary east-west pedestrian connection. A curbless street designed to accommodate bicycles, pedestrians, limited vehicular access, and act as “calming streets to vehicular traffic in the north-south direction.”⁴⁶ The University District proposes using the street as an outdoor

room in which the traditionally defined boundaries of pedestrian space and vehicular space intermingle. A storm water pipe, that encompasses trees and planting, will act as the distinguishing feature of the street and to buffer vehicular traffic from pedestrian traffic.

Montgomery Street will connect to a larger Eco-District that will retrofit surrounding right-of-ways and buildings with green infrastructure like, shared storm water planters, green streets, and rooftop systems. Two blocks of the Southwest Montgomery Street Plan have been successfully completed and two additional blocks are targeted to begin construction within the next two years, including the proposed Oregon Sustainability Center. The Southwest Montgomery Green Street Plan demonstrates how, in even the most urban conditions, downtown streets can be planned and retrofitted not only to fully manage storm water runoff but to also create, integrate, and preserve vibrant pedestrian spaces.⁴⁷



<http://nevuengan.com/green-infrastructure/sw-montgomery-green-street-concept-plan>

[Deaderick Street Streetscape Improvements - Nashville, TN]

In 2009, Nashville completed a \$4.5 million “green street” project along Deaderick Street, which convert-

a major downtown road into a pedestrian-friendly boulevard by incorporating “sidewalk-level bioretention planters, bioretention curb bump-outs, a landscaped median, and porous concrete sidewalks, and by planting 102 shade trees.”⁴⁸ Hill Center Green Hills is a 10-acre mixed-use project in Nashville that utilizes a sustainable landscapes within the larger community of Green Hills. Sidewalk bioretention planters, reduce pollution and restore habitats.

[Swale on Yale - Seattle, WA]

Seattle has been one of the pioneering cities in the use of green infrastructure. One great example of Seattle’s commitment to green infrastructure initiatives is its collaboration with the neighborhood of Capitol Hill in order to prevent millions of gallons of polluted stormwater from flowing into Lake Union and out of this collaboration the Swale on Yale project was born. The Swale on Yale project is comprised of a series of biofiltration swales, a pre-treatment swirl concentrator and a diversion structure, which are intended to filter out the pollutants in the stormwater before it enters Lake Union. These swales will encompass four blocks on Yale Avenue North and Pontius Avenue North.

[Milwaukee, WI]

The City of Milwaukee Office of Environmental Sustainability has recently been awarded a Coastal Management program grant to create a standard policy for the implementation of Green Streets. A standard policy for Green Streets will enable green infrastructure to be considered during the capital improvement planning process and result in implementation as part of the standard street reconstruction process. Benefits of the Green Streets policy will be to prioritize green infrastructure implementation where it is cost effective and can benefit related City of Milwaukee water quantity control efforts.



<http://hpigreen.com/tag/green-street/>



<http://www.seattle.gov/util/MyServices/DrainageSewer/Projects/SwaleOnYale/ProjectUpdates/index.htm>



<http://waterdrum.info/home/>

Complete Streets

The Complete Streets concept intends to provide for the safe use of the street by all travelers. In essence, they are shared spaces that enables safe and comfortable access and travel for pedestrians, cyclists, motorists, and public transport. More so than the previous two theories complete streets are “about policy and institutional change.”⁴⁹ The complete street approach not only looks to alter the design of streets for more democratic usage, it also looks to change the “decision-making process so that all users are routinely considered in the planning and designing process.”⁵⁰ As part of this new approach policy makers developed “context-sensitive design concepts and techniques [CSS].”⁵¹ CSS is another policy approach which ensures that complete street designs “are appropriate for the area in which a project is implemented”⁵² The policies that shape complete streets are not intended to be universally applied, but, rather reflect the local context of their application because rural streets and urban streets do not have the same type of users, with the same frequency of use.

According to the National Complete Streets Coalition, typical elements that make up a complete street include sidewalks, bicycle lanes, shared-use paths, designated bus lanes, safe and accessible transit stops, and frequent and safe crossings for pedestrians.⁵³ An-

other factor in defining a complete street is in the way mobility is defined. However, the implementation of complete streets policies has to do with more than its physical design. One of the major components of complete street policies is selecting a vehicular speed that is comfortable for all of the various users of the street.⁵⁴ The policies of complete streets are attempting to redefine mobility in terms of total travel time as opposed to the conventional definition of travel speed. Complete street designs use “arterial traffic calming measures” in order to “retrofit urban arterials which” ensures safe pedestrian crossing.⁵⁵ Infrastructure changes like road diets, narrowing travel lanes, controlling for speed, synching traffic signals, and adding median landscaping are just a few other ways engineers and designers have sought to calm traffic on arterial roads. Each of these policy initiatives and techniques is in essence a way of making the arterial street more accommodating to various other forms of travel and users. The policy of complete streets is an attempt at designing in a less conventional manner, spurred by the “growing awareness of other transportation modes.”⁵⁶



<http://www.theatlanticcities.com/commute/2013/11/brief-history-how-bike-lanes-became-hip/7465/>



http://www.ca-city.com/complete_streets/fundamentals.html

Medians & Refuge Island



Refuge medians allow people crossing the street to have a chance to safely wait for traffic

Mid-Block Crossings & Curb Extensions



Sidewalk 'Bump-Outs' reduce the time needed to cross the street & increase safety

Pedestrian Signage



Pedestrian signs help provide information/direction, and help celebrate the community brand

High-Visibility Crosswalks



Increasing awareness of places where people cross the street increases pedestrian safety

Benches, Outdoor Dining and Street Furnishings



Places to sit and rest along the street provide comfort for pedestrians

Sidewalks



Minimum sidewalk widths create space on the street for amenities and gathering

Traffic Safety and Speed Management



Making motorists aware of the speed limit and intersection rules increases pedestrian safety

Bike Routes & Bike Racks



2011

COMPLETE STREETS TOOLBOX

Help direct pedestrian traffic across the street & protect corners from auto drive-over

Bus Shelters & Shuttle / Bus Service



Bus and shuttle services are an important part of a Complete Street network

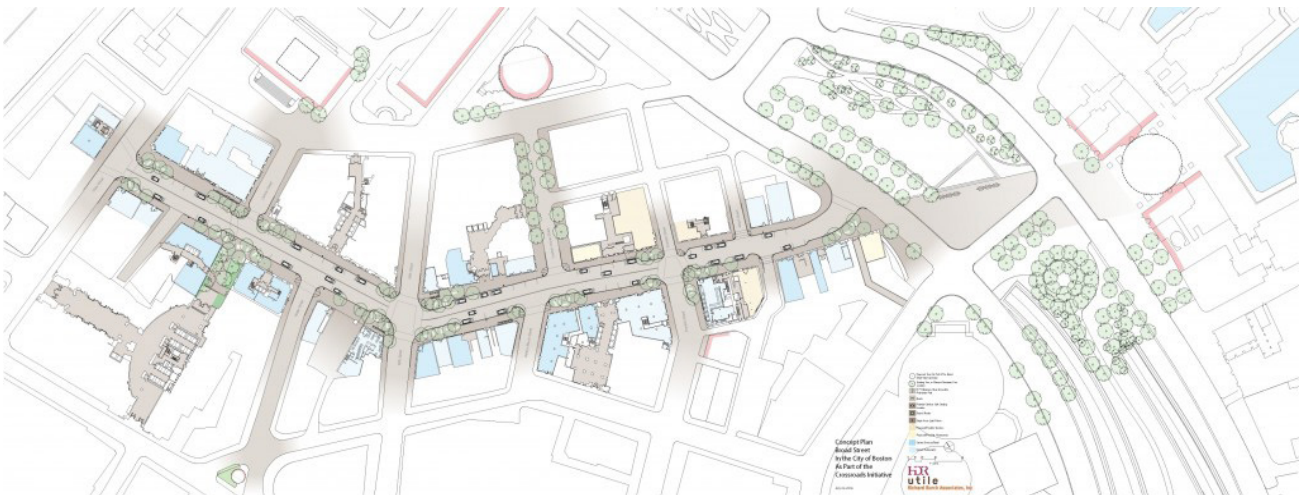
Case Studies

Boston recently adapted a Complete Streets program in order to adjust for the growing number of pedestrians and cyclists and the decreasing number of motorists on the roads. Their Complete Streets program aims to connect three sustainable initiatives together: Multimodal, Green, and Smart

The Multimodal component “incorporates pedestrians, peoples with disabilities, bicyclists, transit users, and motor vehicle drivers” on the same road way. Green, seeks to incorporate more Green Street initiatives into the design of streets and Smart, incorporates smart phones and ride sharing programs to create greater efficiency in travel. The following case studies represent a few of the projects the Boston Transportation Department have implemented so far.

[Broad Street - Crossroads Initiative, Boston, MA]

Broad Street runs throug Downtown Boston it intersects with a number of important streets and connects many to nearby popular districts for resturants, nightlife, entertainment, and shopping. Steps have been taken to widen sidewalks, which allow for outdoor dining at nearby cafes and restuarants, along with custom seating. Truncated domes will be added to the new curb extensions along with lighting and crosswalk signals will all add to a more improved and friendly pedestrian streetscape.



<http://bostoncompletestreets.org/projects/broad-street-crossroads-initiative-south-boston/attachment/broad-st-after-plan/>

[Peabody Square - Boston, MA]

Peabody Square is emerging as a thriving community new restaurants, housing and proximity to transit. The goal of the new Peabody design is to realign Talbot Avenue with Dorchester Avenue in order to expand greenspace, improve pedestrian safety, improve traffic flow, add bicycle lane connections, and create an outdoor plaza which would be utilized by cafes and restaurants. All of these features will be combined with stormwater improvements like rain gardens and pervious pavers to create an environment that is safe, friendly, and welcoming to all users.

Before



<http://www.bostoncompletestreets.org/projects.php?id=peabody>

After



<http://www.bostoncompletestreets.org/projects.php?id=peabody>

[Dudley Square - Boston, MA]

Complete Streets Chicago Design Guidelines is a goal-oriented effort that provides guidance to the community, developers, and engineers on creating streets that are intended to be designed and built to improve safety for all types of transportation users. CDOT Commissioner Gabe Klein, described the efforts of the Chicago complete street program as a way to “build and maintain our roads for healthy business districts, vibrant neighborhoods and high quality of life, and measure success through improved safety, mode choices and livability.”⁵⁷

Complete Streets Chicago: Design Guidelines emphasizes street design that will support the surrounding neighborhood, transportation mode priorities, and is not limited by rigid engineering standards. The primary goal of the complete streets manual is to reevaluate how streets are designed, built and maintained with a primary emphasis on pedestrians, public transit, and cyclists.



http://www.cityofboston.gov/images_documents/Dudley%20Street%20Imagined-%20Artist's%20Rendering_tcm3-37144.pdf

[New York City]

New York City has an extensive Complete Streets Program. Here bike lanes, vehicles, and pedestrians all interact with one another in a cohesive manner. Bike lanes are given a place on the street with a buffer between them and vehicular traffic. Signaling lights that are specific to the cyclists keep them from prematurely going into the street. Pedestrians also have their own space and signaling devices which keeps them safe from street traffic. All of these interactions work to ensure that each mode of transportation can be used without obstructing the use of the other.



<http://www.wnyc.org/story/284533-ny-gov-will-sign-complete-streets-law/>

[Complete Streets Chicago]

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<http://chicagocompletestreets.org/>

Conclusion

The goal of this paper is to demonstrate that streets can be “more than public utilities,” they have the effect of “focusing attention and activities on one or many centers.”⁵⁸ The concepts looked at show actual case study examples of how streets are evolving and how people are responding to new concerns.

Historically we have seen street design comes out of a change in cultural needs. In the Medieval Period there was a need to expand the functionality of the streets by widening them. In the Renaissance, change was spurred by an aesthetic shift. Designers emphasized symmetry and order and sought to use streets to create views and axial relationships. Similarly, Green Streets are in response to peoples growing awareness and anxieties concerning climate change and green house gases. Complete streets are in response to the priority cities, have over the years, given to vehicular traffic and the subsequent steady destruction of main streets all over America.

Within these case studies streets are beginning to be defined, understood, and designed in a multi-dimensional capacity. Consideration is being given to sustainability, people, ecology, and the surrounding environment. Atlanta is a city that for many years designed its streets primarily with vehicular traffic in mind however, as more people move from the suburbs and into the city center they will have to be redesigned. Each of these theories provides an example of how that might be achieved.

The primary objective of these practices is “to take a dilapidated street, and pave it, clean it, light it, and keep it clean [in order to] effect a local metamorphosis.”⁵⁹ This concept is useful to a city like Atlanta, as it begins to redefine its relationship between streets, people,

and public spaces. This can already be seen taking shape in some areas throughout the City. Local efforts in various neighborhoods have introduced Everyday Urbanism tactics in order to make the urbanist, activist, city official, and others aware of the potential of the area. Initiatives such as, Parking Day and pop-up retail have already been used in the Midtown and Downtown neighborhoods in order to re-energize communities and policy makers to the potential of these areas.



<http://clatl.com/freshloaf/archives/2013/09/10/elevate-set-to-return-to-broad-street-in-mid-october>



<http://wmevents.com/2013/01/weekend-in-review-midtown-pop-up-store/>

Using the case studies as a creative reservoir of ideas for redesigning streets, the concepts of Green Streets and Complete Streets could be applied to a number of streets in Atlanta.

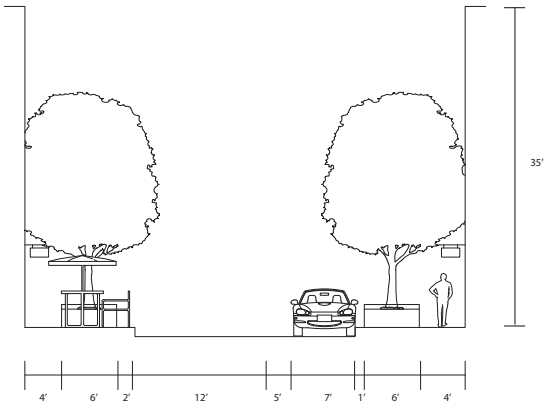
For example, Forsyth Street runs through the historic Farlie-Poplar District of Downtown Atlanta and is a part of the National Register of Historic Places. The area is considered “Atlanta’s historic central business district.” Forsyth Street is composed of a mix of uses which is mostly offices and condominiums with ground floor store fronts. It has a right-of-way of 56 feet, a 10 foot sidewalk, and 7 foot dedicated parking lane. Despite the density of the area there is little in the way of pedestrian traffic. Increased pedestrian activity will only come with some re-designing of the street to create one that fosters diversity and interactions.



Forsyth Street, Atlanta, Georgia

One block over on Broad Street there is an abundance of street life and pedestrian activity. The major difference between these two streets is the treatment of the public right-of-way.

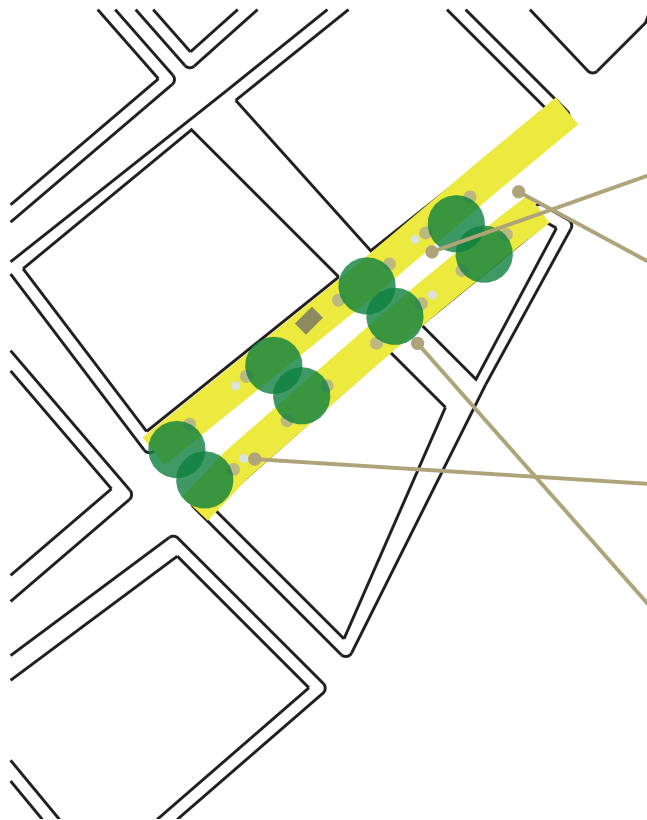
Albeit, Broad Street is not an intentional green street it is easy to see how the character of a green street may be used to give definition and create a sense of place along Forsyth Street.



Right-of-Way: Broad Street, Atlanta, Georgia



Broad Street, Atlanta, Georgia



Broad Street has a unique character. Planters along the tops of light poles softens the utility pole.



Thick vegetation makes being along Broad Street very comfortable despite harsh temperatures. The tree canopy not only provides shades and comfort for pedestrians on the street which makes them want to be outdoors longer, but it also produces interesting shadows and peeps into the sky.

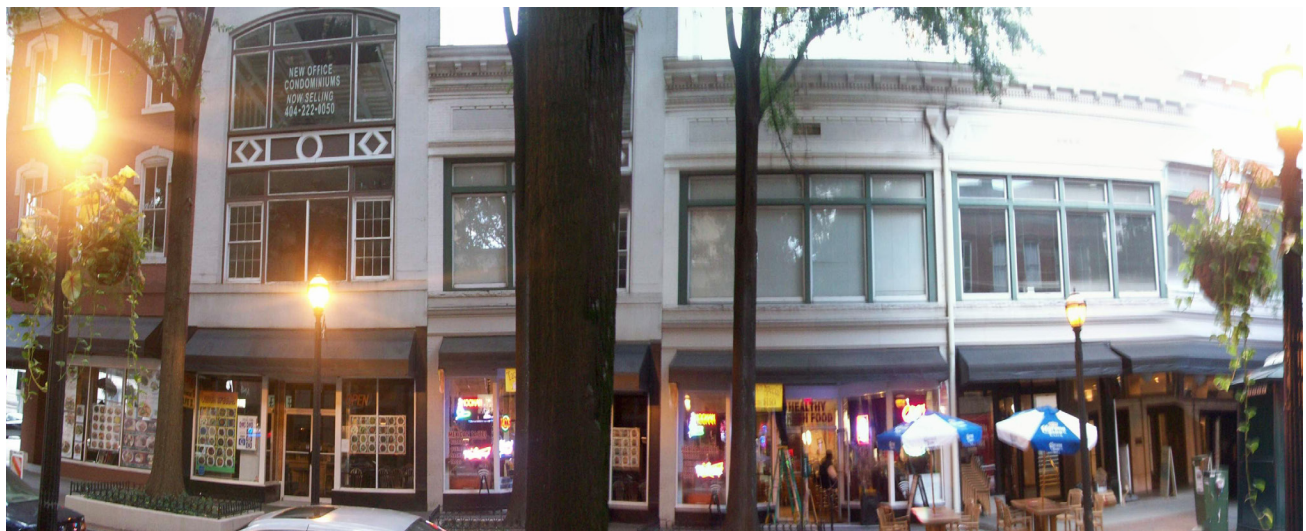


The weakest point along Broad Street is the lack of trash receptacles. After an event at Woodruff Park this trash can is over flowing. Despite the event however, trash cans along Broad Street commonly look like this because of all the restaurants in the vicinity.



Individuals and students regularly ride their bikes through this area. Bike racks are placed alongside planters for those who chose to use an alternative method of transportation.

Plan: Broad Street, Atlanta, Georgia



Street Wall: Broad Street, Atlanta, Georgia

Using the Green Street case studies as examples, relatively low cost green design could be implemented into the Forsyth streetscape. Temporary, low cost efforts like tree planters would help to define the street, break up the hardscape, add shading, be sensitive to the human scale, provide visual interest, and other benefits. Overtime on street parking spaces could be eliminated and the sidewalks expanded. The planters would be moved closer to the street and replanted in the ground.

Additional green street elements like green roofs and green walls would be added to parking decks and to break up the massive stone building facades. Food trucks, temporary art instillations, and other Everyday Urbanism ideas could be placed strategically along the right-of-way and in underutilized ground floor office buildings, parking decks, and parking spaces.

Depending on the street type, usage, surrounding density, and land use concepts like these would be applicable to many other streets in Atlanta.

Redefining how we want to experience a place and increasing the health, livelihood, and vitality of the urban environment is essential to creating lively streets and better communities.

In order for Atlanta to continue to grow its urban core in an economically and socially long-lasting way, it has to treat its streets as social outdoor spaces. Streets that are designed for and encouraging of multiple users and activities create lively streets, increase social interactions, and support neighborhood vitality. Such a metamorphosis is “a desired component of any good neighborhood and therefore any good city.”⁶⁰

Before



After





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